

WHAT IS CLAIMED IS:

1. An optical device comprising:
 - a light source for emitting diverging light;
 - a polarizing beam splitter for transmitting or reflecting said diverging light according to a polarized light component;
 - a collimator lens for converting said diverging light transmitted through said polarizing beam splitter into collimated light;
 - an objective lens for focusing said collimated light on an object; and
 - a first optical element arranged between said collimator lens and said objective lens for producing a phase difference of $+90^\circ \pm 15^\circ$ or $-90^\circ \pm 15^\circ$ between P-polarized light and S-polarized light, said first optical element having a principal axis perpendicular or parallel to a plane of incidence of said diverging light on said polarizing beam splitter.
2. An optical device according to claim 1, wherein said first optical element comprises a quarter-wave plate having an optic axis perpendicular or parallel to the plane of incidence of said diverging light on said polarizing beam splitter.
3. An optical device according to claim 1, wherein

said first optical element comprises a reflecting mirror whose plane of incidence of said collimated light is parallel or perpendicular to the plane of incidence of said diverging light on said polarizing beam splitter, and a phase difference producing film formed on said reflecting mirror.

4. An optical device according to claim 1, further comprising a second optical element for separating reflected light from said object into polarized light components having polarization directions orthogonal to each other, and a third optical element arranged between said second optical element and said polarizing beam splitter for producing a phase difference of $-90^\circ \pm 15^\circ$ or $+90^\circ \pm 15^\circ$.

5. An optical device according to claim 4, wherein said second optical element comprises a Wollaston prism.

6. An optical device according to claim 4, wherein said polarizing beam splitter has a polarization separating surface, and said third optical element comprises a phase difference producing film formed on said polarization separating surface.

7. An optical device according to claim 4, further comprising a glass block bonded to said polarizing beam splitter, said glass block having a total reflection

surface;

said third optical element comprising a phase difference producing film formed on said total reflection surface.

8. An optical storage device capable of at least reading information recorded on an optical storage medium, comprising:

a light source for emitting diverging light;

a polarizing beam splitter for transmitting or reflecting said diverging light according to a polarized light component;

a collimator lens for converting said diverging light transmitted through said polarizing beam splitter into collimated light;

an objective lens for focusing said collimated light on said optical storage medium;

a reproduction signal detector for detecting a reproduction signal from reflected light from said optical storage medium;

a servo signal detector for detecting a servo signal for light focused on said optical storage medium from said reflected light; and

a first optical element arranged between said collimator lens and said objective lens for producing a

phase difference of $+90^\circ \pm 15^\circ$ or $-90^\circ \pm 15^\circ$ between P-polarized light and S-polarized light, said first optical element having a principal axis perpendicular or parallel to a plane of incidence of said diverging light on said polarizing beam splitter.

9. An optical storage device according to claim 8, wherein said first optical element comprises a quarter-wave plate having an optic axis perpendicular or parallel to the plane of incidence of said diverging light on said polarizing beam splitter.

10. An optical storage device according to claim 8, wherein said first optical element comprises a reflecting mirror whose plane of incidence of said collimated light is parallel or perpendicular to the plane of incidence of said diverging light on said polarizing beam splitter, and a phase difference producing film formed on said reflecting mirror.

11. An optical storage device according to claim 8, further comprising a second optical element for separating reflected light from said optical storage medium into polarized light components having polarization directions orthogonal to each other, and a third optical element arranged between said second optical element and said polarizing beam splitter for

producing a phase difference of $-90^\circ \pm 15^\circ$ or $+90^\circ \pm 15^\circ$.

12. An optical storage device according to claim 11, wherein said second optical element comprises a Wollaston prism.

13. An optical storage device according to claim 11, wherein said polarizing beam splitter has a polarization separating surface, and said third optical element comprises a phase difference producing film formed on said polarization separating surface.

14. An optical storage device according to claim 11, further comprising a glass block bonded to said polarizing beam splitter, said glass block having a total reflection surface;

said third optical element comprising a phase difference producing film formed on said total reflection surface.